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*Performance in Consumer
Financial Services Organizations:
Framework and Results from the
Pilot Study*

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Performance in Consumer Financial Services Organizations: ¹
Framework and Results from the Pilot Study

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Abstract: Over the past decade, the Alfred P. Sloan Foundation has sponsored a series of industry studies, the aim of which is to understand how technology and human resources practices blend together to create high-performance workplaces and competitive industries. This report summarizes the first year of one of the studies devoted to the financial services industry: an analysis of the performance of financial services. After a brief overview of this project, the report discusses a conceptual framework and initial empirical evidence on the drivers of competitiveness in *consumer financial services*, in particular, commercial banking. The plan of work to be done in the second year of the project is then provided.

Key words: Banking, financial services, human resources, industrial performance, information technology, productivity

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1.0 Introduction

Financial services comprise over 4% of the Gross Domestic Product in the United States as well as employing over 5.4 million people, more than double the *combined* number of people employed in the manufacture of apparel, automobiles, computers, pharmaceuticals, and steel¹. While impressive, these numbers belie the much larger role that this industry plays in the economy (Herring and Santomero 1991). Financial services firms provide the payment services and financial products which enable households and firms to participate in the broader economy. By offering vehicles for investment of savings, extension of credit, and risk management, they fuel the modern capitalistic society.

While the essential functions performed by the organizations that make up the industry (the provision of payment services and facilitation of the allocation of economic resources over time and space) have remained relatively constant over the past several decades, the structure of the industry has undergone dramatic change. Liberalized domestic regulation, intensified international competition, rapid innovations in new financial instruments, and the explosive growth in information technology fuel this change. With this change has come increasing pressure on managers and workers to dramatically improve productivity and financial performance. Competition has created a fast-paced industry where firms must change in order to survive.

This report summarizes the first year of a multi-year effort to understand the drivers of performance in financial services organizations. Such results are important to individual firms as they seek to build high-performance workplaces, and to policy-makers in developing regulations, job training programs, and trade policies which aid rather than hinder this vital segment of our economy. In addition, financial services are the largest single consumer of information technology in the economy, investing \$38.7 billion dollars in 1991 (National Research Council 1994; p. 2). This investment has had a profound effect on the overall structure of the industry, the number and types of products and services offered to the consumer, and on the skill levels of the human resources in the industry. However, its effect on financial performance of the industry remains elusive (National Research Council 1994). Why this “productivity paradox” (Brynjolfsson and Hitt 1993) exists is an important part of the project described herein.

In order to understand the drivers of performance in the financial services industry, one must first confront the fact that services are different from manufacturing, which is the focus of all the other Sloan-sponsored projects (apparel, automobiles, computers, pharmaceuticals, powered metals, semiconductors, steel, textiles). Why? One major reason is *co-production*, the fact that the consumer is often adding labor to the creation of the services. As stated by Fuchs (1968) in his seminal work on services, “...productivity in many services industries is dependent in part on the knowledge, experience, and motivation of the consumer.” In addition, the scope of the service enterprise is typically quite vast, with components of the service production process being both producers and deliverers of the service. As stated by Norsworthy and Lang (1992; p. 202):

... it is useful to distinguish producing services from dispensing them. In the banking sector, it is clear that the enterprise as a whole produces the services; the services are dispensed through a network of establishments which are regularly staffed by employees and Automatic Teller Machines, or ATMs: pseudo-

¹Comparison based on average 1991 data reported by the U.S. Bureau of Labor Statistics, *Employment and Earnings Report*, March 1992. Data for the financial services industry includes SIC codes 60-64 and 67. Data for the apparel, automobile, computer, pharmaceutical and steel industries include SIC codes 239 (less 23), 371, 357, 283, 331, and 332.

establishments, or lesser network nodes, which are not staffed. An accurate characterization of the output of the banking enterprise must not only include multiple outputs, it must also include some representation of the network dispensing those outputs. In fact, major dimensions of competition among banking enterprises in the U.S. include the size of the network and the time of day where services are available. This network dimension is generally recognized as an important dimension of utilities, transportation, and communication services; it also appears in financial services as we have argued, and may well be important in other service sectors such as retail trade.

Simply put, consumers do not have any interaction with an auto assembly plant, but they do participate in the processes of the bank branch. As participants in this co-productive process, customers care far more about the inner-workings of the bank than the assembly plant. Stated differently by Delaunay and Gadrey (1992; p. 124):

Finally, the question can be asked whether, for some services (customized services like health services, information intensive services, advanced producer services) the very concept of productivity, built to analyze mass production, without any consideration of the indirect effects of the service on the customer, is still relevant.

Along with the active participation of the consumer in service production, one must be aware that the quality of the services provided is forever changing. In commenting on the problems of measuring service productivity, Griliches (1992; p. 7) states: "Over all this hangs the ubiquitous issue of quality change. The problem is general and pervasive." Of course this problem also exists in some manufactured goods, such as computers, but "in some service industries, ...because of the underlying heterogeneity of transactions, the difficulty of making comparisons across time and space is even greater..." (Griliches 1992; p. 7) than for commodities. That is, the financial service product is a commodity. The transaction, a combination of the product and the delivery, is heterogeneous.

Productivity gains from human resource improvements or technology investments may not show up in standard performance measures but rather, be used to improve the quality of the service provided. As stated by Delaunay and Gadrey (1992; p. 125; emphasis added):

The introduction of new technologies in most services (retailing, banking, insurance, producer services) is very rapid and, *to some extent*, looks like classical industrialization. But all these studies converge to show that it is generally achieved not by the disappearance of the service dimension (i.e., relations, adaptation to individual demand, consultancy, assistance) but in such a way that, whereas the simplest part of the service is partly automatised, there is at the same time an expansion of the most relational and most complex part of the service. This could be one explanation for the apparent stagnation of productivity in these sectors, insofar as this *productivity is assessed without taking into account the increasing level, range, and nature of the services provided*.

If true, what appears to be a stagnation in productivity may actually be an increase in value delivered to the customer. Moreover, delivering value to the customer provides the institution with sales opportunities and much needed information about the institution's customer base. In fact, by decreasing traditional productivity, a bank may increase overall performance through increased interaction with the customer, or co-producer. The pilot survey examines the relationship between technological advancement and the relational part of service delivery by studying time spent with the customer in relation to technological sophistication and time spent on the entire delivery process.

While we have attempted to draw a distinction between manufacturing and services, the differences are more a matter of degree than of sharp distinctions between these sectors. For example, quality is an issue in terms of the measurement of manufacturing productivity in a similar fashion as in the service sector; just not to as great an extent. Similarly, consumers actively engage in after-sales support of products which is similar to the aspects of co-production for most services, but again, not to as great an extent. As the first service-sector study, however, it is important to highlight the differences up front and realize that a traditional mass production study of productivity simply will not suffice. Rather, we must confront the issues raised above in a creative manner.

In particular, we recognize that industry has embraced reengineering and a process-management² focus (see, e.g., Davenport and Short 1990 for a description of the reengineering phenomenon) for a reason. Whether in manufacturing or the service-sector, service delivery processes are service delivery *processes*. To achieve improvement, financial service institutions must learn from similar processes in other industries, and as academics our focus must shift to a process or value-chain orientation in both our research and in management practice.

The traditional approach to process management and control is to develop an optimal schema for work and then to encode this into the organizational culture and resulting information systems. For example, the standard industrial engineering (IE)/operations research approach to process improvement is to study the process, simulate it, and then propose a new process design. The design is then implemented by the creation of new job descriptions, incentives, and information systems. In this sense, the new process is literally encoded by the process definition and supporting IT and incentive structures. *Process reengineering* has reinvented/ rediscovered this traditional IE approach, but in the context of white-collar work (Davenport and Short 1990). The important contribution of the reengineering phenomenon has been the focus on *processes* as the central unit of management.

If processes are viewed as the central “technology” of an organization (Davenport and Short 1990; Morroni 1992), an important analogy emerges. As with any technology, the process must be maintained -- herein lies the role of continuous process improvement (CPI) and other incremental quality programs. Furthermore, after a process has reached its useful life, it should be scrapped and/or rebuilt -- herein lies reengineering. Thus, one must take a *life-cycle* view of processes when undertaking a benchmarking/ efficiency study. Just because my 386 PC is slower does not mean I immediately scrap it for a 486 machine; I need to make sure that the technology has achieved its useful life. The same is true for processes. If it was not, we would be forever reengineering without the benefit of CPI. The conclusion from this analogy is that a process-oriented study of efficiency and efficacy must include the “age” and “investment” in the process as well as technology and quality/human resource practices.

Therefore, our approach to studying performance drivers in financial services relies heavily on a process-oriented methodology. In addition, we shall not focus on traditional measures of productivity or financial performance such as transactions per FTE or ROA and ROE. Instead, we will base comparisons on intermediary measures which evaluate the drivers of *performance* from the perspective of all participants in the co-productive process.

²A ‘process’ is a specific ordering of work activities across time and place, with a beginning, an end, and clearly identified inputs and outputs: a structure for action (Davenport 1993). Thus a company is a collection of processes (e.g., delivery processes, financial management processes, account origination processes, performance management processes, etc.) and consumers are affected by numerous processes from multiple organizations.

Roth and van der Velde (1991a) reinforce, in part, our views in their recent study of performance in retail banking. In their report, the authors summarize the major success factors as stated by industry leaders:

- (1) flexibility and responsiveness in operations.
- (2) ability to understand the importance of time-based competitiveness in responding to customer needs and expectations.
- (3) ability to change capacity rapidly and improve customer access.
- (4) ability to introduce innovative products quickly through superior workforces and systems.
- (5) ability to match products to customer expectations effectively (conformance quality).

These success factors are consistent with those we found in preliminary industry interviews conducted last year. Our work uses these principles as well as many others (as described in Section 3) as motivation to focus on *performance*, not productivity, as the measure of effectiveness in the marketplace.

While our ultimate goal is to study the entire financial services industry, we begin with a segment that covers all sectors -- *consumer financial services*. This segment of the industry includes retail banking, consumer-oriented insurance products, mutual funds, mortgage banking, credit cards, property and casualty insurance, and retirement. That is, the segment of the industry which provides products and services for users who are or act like individuals. More specifically, the focus for the first part of this study, and of this report, is on consumer banking. By focusing here, we will directly confront the issues raised above, while at the same time providing insight into this important segment of the industry which has tremendous impact due to its rapid change, large scale employment, massive technology investments, omnipresent regulatory concerns, and increasing competitive dynamics. Our goal is to meet the challenge laid out by Griliches (1992; p. 7) in his assessment of productivity/performance modeling for services:

... the necessary economic-engineering research that would tell us which of the characteristics and training levels are important for their successful performance has not been done. We are thus lacking the scientific base for the desired measurement procedures.

It is our intention to provide this engineering-economic research for consumer banking initially, secondly for consumer financial services, and finally, for all segments of the financial services industry.

The structure of the remainder of this report is as follows. The next section will review the related literature and non-published evidence that currently exists on financial services and performance. Section 3 will present the conceptual framework for our study. Section 4 will describe our research methodology to investigate this framework, and Section 5 will present the preliminary empirical results from the pilot survey.

2.0 Literature Review

A large number of studies have been undertaken over the past decade dealing with the efficiency of banks. The typical study attempts to ascertain whether scale or scope economies exist in banking. In addition to these traditional economic explanations of performance differences among firms, recent studies have focused on the notion of *X-efficiency* (Leibenstein 1966), a measure of the performance of an organization relative to the best practice in that industry. More precisely, X-efficiency describes all technical and allocative efficiencies of individual firms that are not scale/scope dependent. Thus X-efficiency is a measure of how well management is deploying technology, human resources, and other assets to achieve a given level of performance. As stated by Berger, Hunter and Timme (1993; p. 228):

The one result upon which there is virtual consensus is that X-efficiency differences across banks are relatively large and dominate scale and scope efficiencies.

Other results, such as those reported by Fried, Lovell and Vanden Eeckaut (1993) in the context of credit unions, demonstrate that this claim exists in both large and small institutions.

Based on this evidence, our focus in this study will not be to ascertain the effects of scale and scope upon firm-level efficiency. Rather, holding these effects constant, our focus will be to explain why X-efficiency varies among financial institutions. That is, our goal is to understand how technology, human resources, and process management methods vary across these organizations and how this variation affects performance. In so doing, we are attempting to address the concern raised by Berger, Hancock and Humphrey (1993) at the conclusion of their profit efficiency study of banks:

Our results suggest that inefficiencies in U.S. banking are quite large -- the industry appears to lose about half of its potential variable profits to inefficiency. Not surprisingly, technical inefficiencies dominate allocative inefficiencies, suggesting that banks are not particularly poor at choosing input and output plans, but rather are poor at carrying out these plans.

Therefore, our focus will be on the implementation of strategies rather than the strategies themselves (see Section 3.2).

This evidence from econometric literature is backed-up by recent survey-based research on retail banking. Based on their survey results, Roth and van der Velde (1991a; p. 35) conclude that:

We have found what may be a counter-intuitive discovery: Best-in-class retail banks developed both their operations and marketing capabilities simultaneously, rather than sequentially. As a result, they enjoyed greater profitability and superior performance across the board, but especially on innovation and speed.

That is, high-performing retail banks (as defined by ROE and ROA) seem to be able to move to the efficiency frontier by focusing the operations on the customer, thus becoming more efficient and of higher quality. In so doing, they seem to take a process-oriented approach (Roth and van der Velde 1991a; p. 35):

Best-in-class banks are creating “seamless” front- and back-room operations intricately linked and intensively responsive to the task of satisfying target customers. Furthermore, best-in-class banks are working hard to take “time” out of the total organization in order to flex their strategic muscles through unprecedented speed of retail delivery and responsiveness to customers.

Thus, the trend of a front-office/ back-office dichotomy is out of date. The emphasis should be on processes that the customer values rather than traditional back-office productivity measures such as checks processed per FTE.

In summary, Roth and van der Velde come to the same conclusion as Berger *et al.*, namely:

For these reasons, a bank’s ultimate performance, despite external conditions, is strongly influenced by the predisposition of management to not only develop innovative solutions for the future, but also to create the milieu for their successful implementation.

That is, they conclude that it is management practices that seem to drive the success of these organizations in the long-run.

Other studies seem to come to similar conclusions; that is, management practices are essential to performance, and the concept of productivity or performance should have a notion of value added at each stage of the process.

One key area of management practices, for example, is the management of human resources. Studies in manufacturing have clearly shown the effects of different ways of managing employees on performance outcomes such as productivity (MacDuffie 1991; Ichniowski and Shaw 1994) and quality (MacDuffie 1991; Arthur 1994). Considerable anecdotal evidence suggests that the management of people in financial services may also affect performance outcomes. (See, for example, Long 1988; Beatty and Gup 1989; ABA Banking Journal, 1991; Roth and van der Velde 1991.) Yet careful empirical studies considering the role of human resources in financial services have taken one of two tacks. Much of the solid econometric work on efficiency of financial service organizations considers crude aggregate measures of labor as an input (labor cost, hours worked, or number of employees) without attention to the management of labor. Further, work that considers management practices focuses on high-level managers (for example, Donnelly *et al.* 1989; Seller 1992; Blackwell *et al* 1994) but does not address the bulk of the workforce involved in delivering financial services to customers. Neither of these two approaches allows for the possibility that banks may gain competitive advantage from innovative management of the broader workforce. One study, however, suggests that top performing Finnish banks are leaders with respect to training and employee empowerment (Tainio *et al* 1991), a result consistent with the manufacturing studies cited above.

Technology also plays a key role in the performance of firms in this industry. Roth and van der Velde (1991b; Figure 3) show that \$392,000 per bank (\$2.1 million for banks with more than \$3 billion assets) is spent annually on platform automation and \$502,000 (\$3.2 million for the larger banks) is spent on upgrading information and transaction processing. Even with these large investments, it is still difficult to ascertain the payoffs associated with these projects. In manufacturing, recent studies (Brynjolfsson and Hitt 1993; Lichtenberg 1993) have found large payoffs in information technology (IT) investments, both in terms of equipment and personnel. For example, Lichtenberg (1993; p.22) states that “...the estimated marginal rate of substitution between IS and non-IS employees, evaluated at the sample mean, is 6: one IS employee can substitute for six non-IS employees without affecting output.”

Unfortunately, similar results for financial services are not available (mainly due to the measurement problems discussed in Section 1.0). For example, in the recent study by the National Research Council (1994; p.81) on IT in services, the problem in the context of banking is summarized as follows:

Neither approach [for productivity measurement] is able to account for improvements in the quality of service offered to customers or for the availability of a much wider array of banking services. For example, the speed with which the processing of a loan application is completed is an indicator of service that is important to the applicant, as is the 24-hour availability through automated teller machines (ATMs) of many deposit and withdrawal services previously accessible only during bank hours. Neither of these services is captured as higher banking output at the macroeconomic level.

While hard and fast data are not yet available, many believe that financial services are at the brink of major performance improvements due to technology. However, this will not come in the traditional back-office functions. Rather, the performance improvements will arise in the integration of front- and back-office functions; i.e., in integrating business processes. Roach (1993; p. 10) points out that the consolidation of back-office operations is due in large part to scale economies due to IT investments, but that these investments are becoming increasingly difficult to find. However, he states that "...new productivity opportunities are now spreading rapidly across the sales function of the service sector..." It is precisely in these front-office functions that major investments will occur. Philip Kotler (as cited in Pine 1993; pp. 43-44) states this trend clearly:

Instead of viewing the bank as an assembly line provider of standardized services, the bank can be viewed as a job shop with flexible production capabilities. At the heart of the bank would be a comprehensive customer database and a product profit database. The bank would be able to identify all the services used by any customer, the profit (or loss) on these services and the potentially profitable services which may be proposed to that customer... This movement away from mass marketing, mass production, and mass distribution is widespread throughout the financial services industry.

Thus, the process orientation of the reengineering phenomenon is vital in understanding the benefits of technology and human resource practices. It is precisely this process orientation that underlies many of the successful studies of human resource and quality practices (MacDuffie 1991; Thomas 1992, 1993; Zuboff 1985), technology investments (Lynch 1991; Parsons *et al.* 1991), and their interactions. Our intent in this study is to use a process view as the basis for understanding how IT and human resources interact to move firms to the boundary of the performance frontier.

3.0 Performance in Consumer Financial Services - A Conceptual Framework

As stated in Section 1, the initial focus of our project is to understand the drivers of competitiveness in consumer financial services. As discussed previously, this focus will enable us to highlight the distinctive features of a service industry. More specifically, our focus is on consumer banking for the current report, although we believe that the framework is applicable to a wide range of consumer-oriented financial services operations.

Based on the literature, one year of field interviews with eighteen major retail banks and financial services companies, and discussions with leading academics, we have developed a conceptual framework for performance analysis (see Figure 1). In what follows, we will describe each component of this framework.

3.1 Industry Conditions

Financial services organizations are constrained and influenced by the broader economic and regulatory environment. The effects of these *industry conditions* vary along a number of dimensions. Regulations, for example, vary from state to state, and affect commercial banks differently than they affect consumer finance companies. In fact, some argue that such regulatory constraints greatly limit the banking industry's ability to compete effectively with other non-bank participants in the financial services arena. We do not wish to enter this debate at this point, but rather note the importance of regulation on the behavior of individual financial institutions.

Other key environmental variables that must be controlled in a study of performance in financial services include changing demography (see, e.g., Furash 1992), the overall macroeconomic climate, the competitive nature of the market (e.g., whether interstate banking is permitted), and the legal restrictions imposed on banks that may not be imposed on other financial services organizations (e.g., community lending provisions). In all of these cases, we must be cognizant of their existence and impact on behavior, but will not focus our attention on the study of their efficiency or efficacy at this point. That is, to the extent possible, we want to focus on the factors that management can control.

3.2 Firm Strategy

Financial service organizations also vary in their strategic responses to broad industry conditions. For example, many (but not all) large commercial banks have pursued a strategy of corporate growth by acquisition; further, banks vary greatly in their implementation of acquisition strategy. And not all financial service organizations choose to compete in all markets. For example, some banks place more emphasis on competing in wholesale markets, others focus on retail markets, and a few have virtually abandoned commercial banking altogether. Further, there are substantial variations in business-level strategies and segment focus within broader markets. Some banks, for example, treat the processing of transactions as an important generator of revenue; others treat transaction processing as a function necessary to support other processes and may even outsource this activity.

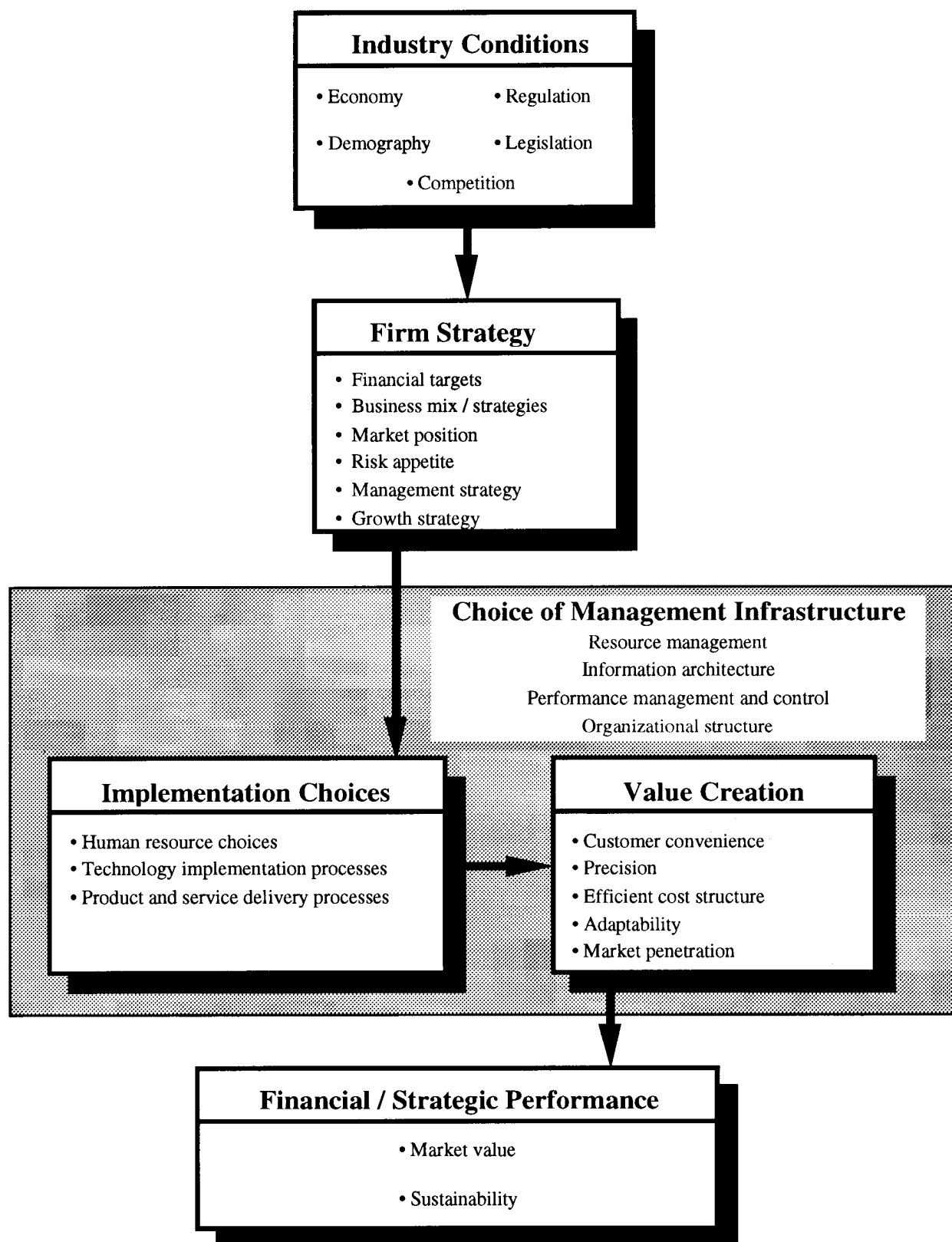


Figure 1. Conceptual Framework

Industry conditions, choices of corporate strategy, and strategic approaches to lines of business may have strong effects on firm competitiveness. It is not our intention in this study to minimize the importance of these effects. However, we are less concerned herein with the choice of optimal strategies, and more interested in the successful implementation of the strategy chosen. One can understand this in the context of a broader, unresolved debate in the strategy literature. Teece et al. (1992) claim that various approaches to strategy are divided into four camps which vary by the assumed opportunity for, or source of, competitive advantage:

- (1) attenuating competitive forces: market structure.
- (2) strategic conflict: a game theoretic approach.
- (3) resource-based perspectives: uniqueness of a firm's resources.
- (4) dynamic capabilities perspectives: ability to learn and adapt.

As Teece et.al. note, no convergence of thought has emerged on the relative value of the perspectives. Theoretical and empirical work to date do not tell us definitively *a priori* whether sources of competitive advantage lie predominantly outside or inside the firm.

Our initial focus is thus guided by our desire to direct attention to issues of implementation and their effects on performance. The importance of broader choices of markets and strategies is at least partially addressed in the efficiency literature, in particular studies of bank efficiency, which lead us to believe that additional internal focus is merited. As Berger, Hancock, and Humphrey (1993) note (emphasis added):

...technical inefficiencies dominate allocative inefficiencies, suggesting that banks are not particularly poor at choosing input and output plans, but *rather are poor at carrying out these plans*.

Generally, then, our approach does not focus on strategic advantage derived from factors external to the firm. Strategic choices at the corporate and business levels, approaches to growth, and decisions about markets and segments may well be crucial, and we recognize the potential importance of those factors emphasized in the literature drawn from industrial organization (Bain, 1959; Caves and Porter, 1977; Porter, 1980), however, in the current study, we intend to treat these choices as control variables: our focus will be on the way firms manage processes, people, and technology.

Our approach may be slightly better positioned to address sources of competitive advantage drawn from inside the firm: what are described as resource-based sources of competitive advantage (Wernerfelt 1984; Barney 1986). This approach may also lend itself to a better understanding of dynamic capabilities and the development and maintenance of strategic advantage over time (Lippman and Rumelt 1982). To the extent that such resources or capabilities lie in the way firms manage technology (Teece 1987), people (Cappelli and Singh 1992), or, as we suggest, processes, we may be able to identify possible key resources and capabilities in financial services. Of course, considerable further work is necessary to determine the extent to which firm-specific practices are difficult to imitate and thus truly sources of sustainable advantage (Barney 1991).

3.3 Choice of Management Infrastructure

Once an organization chooses an overall strategic direction, they have a series of choices as to how to implement this strategy. In particular, management must choose management structure and processes. This choice of strategy implementation falls within the purview of the current study, as depicted by the gray box in Figure 1.

3.3.1 Resource Management

Resource management involves the process of budgeting, determining capital investments, managing resources, and monitoring of the above. While we are not attempting to survey this process, we will use its outputs as indicators of a firm's priorities and strategy. Understanding where resources are allocated will accomplish several things. First, it will reveal where the bank is in terms of its lifecycle. That is, is it spending money on acquisitions, on keeping or increasing market share, or on technological advantage? Second, it will provide insight into what the bank considers its future direction. For example, if the majority of the spending is on opening new branches, then there is a different anticipation than if the spending was on new forms of electronic delivery. Finally, it will allow us to assess whether the resource allocation matches the stated strategy. That is, whether or not the bank is supporting stated philosophies with necessary spending levels.

3.3.2 Information Architecture

The *information architecture* delineates where and how information travels throughout the organization. It is the roads and sewers of the communication and information flow. The ability to perform audits, utilize sophisticated segmentation schemes, and to measure and monitor performance are just a few of the activities which rely on the information architecture.

Besides the amount of resources allocated many issues speak to the level of sophistication and commitment that an institution has for its information architecture. The ease of communication, accessibility of information, automated collection of information, and the standardization of existing information all illustrate the presence of a visible information architecture.

A commitment to an information architecture is especially apparent in an acquisition scenario. If the acquiring institution forces the acquired institution to convert to the common information structure - regardless of the quality of the latter institution's systems - then there is likely a strong and consistent architecture. Similarly, if all the branches within a retail system receive identical performance information from a central source, this also indicates the existence of a solid information philosophy.

3.3.3 Performance Management and Control

Performance management and control is the process of collecting the appropriate data and the art of knowing how to use it. Within the performance management process, performance reporting should serve as the engine for well-informed decision making as well as informing the ability to control the institution through incentives and accountability. Good performance information will

make the right people focus on the right things without creating the information overload complained about in many institutions.

The goal of performance measurement is always to have the information necessary to encourage success. Thus, if a bank has a product emphasis, performance reporting should facilitate product measurement just as a bank with a segment focus should have reporting which allows for incentives based on segment performance. The ability to accurately incent cross-selling explicitly depends on the availability of adequate cross-selling information such as which products are more likely to cross-sell, and which are profitable in various situations. The ideal situation is one in which the use of management information or performance measurement facilitates, rather than detracts from, implementing the strategy of the bank.

A key to providing accurate and actionable information lies in the collection of this information. While the dissemination of appropriate information is essential to directing a business, this information is fueled by smaller pieces of information which must be collected at the source. For example, sales volumes must be captured at the point of sale in order to use the information as the basis of an incentive system. Similarly, individual loan performance must be tracked in order to evaluate the exposure and performance of the entire portfolio and make decisions regarding potential lending characteristics.

The ability to use this information relies on its timeliness and accuracy. If information arrives late or is not dependable, the ability of management to make decisions or encourage behavior is undermined. Thus, the method of information collection is extremely important. While automation clearly facilitates information collection, the tracking process must allow for the rapid analysis and dissemination of the resulting information.

3.3.4 Organizational Structure

The choice of *organizational structure* is interconnected with the above two items in that the structure will impact, and be impacted by, the general management processes devoted to strategy implementation. The goal is to create an organizational structure which furthers the firm's strategy by encouraging and enhancing communication, institutional problem solving, cross-functional efforts, and the leveraging of resources, while at the same time providing the control necessary to achieve success. To enable strategy through organizational structure, an institution must define how it intends to grow, and organize accordingly. For example, if an organization intends to achieve growth by focusing on particular market segment, the organization might want to organize and create accountabilities around segments.

As a means for focusing and directing an institution, organizational structure will ideally mirror the success components of the strategy. For this reason, organizational structure should consider the development of a reporting hierarchy and the placement of functional areas as a strategic decision. For instance, if a particular retail strategy depends on the operations of the phone center, then the phone center might be better placed under the control of the person held responsible for the success of the strategy. The success at organizing accountability and control into related areas will likely lead to higher performance.

Besides control, other concerns in the structuring of an organization are communication and efficiency. The placement and power of the retail bank within the bank holding company affects the ability of an institution to create efficiencies and facilitate the communication necessary for success. In making these choices, issues such as centralization, local control, economies of scale, and contingency planning arise and should be addressed according to their associated strategy.

3.4 Implementation Choices

After management articulates a strategy and its associated value goals, the firm's challenge is to confront the "how" of reaching those goals. Technology, human resources, the development and management of a customer base and appropriate products and services, and the delivery and service of these products and services must all be synchronized to achieve the strategic objectives of the organization. Hopefully, in developing and supporting the means of implementation, management revisits these corporate strategies and ensures that each resource is working towards the firm's goals. In the implementation choices, the bank is facilitating its success or failure. In fact, our interviews identified three main areas which seem to "make-or-break" the success of a chosen strategy by the bank: human resource management, use of technology, and the design and management of product/service delivery processes.

The notion of choice need not imply that firms or their managers continually review and update all aspects of their processes, technologies, or human resource practices. Such constant activity is beyond the capacity of any organization; it would carry with it heavy costs which would surely outweigh any benefits. Rather, in many areas it seems likely that choices are evolutionary (Nelson and Winter 1982). Particular processes, systems, structures, and practices are re-examined when some event draws the attention of management to the issue or area in question. At this point, managers examine options and, where appropriate, choose to implement new ways of doing things.

Despite this evolutionary process, however, it is important that management understands the means by which resources are consumed. Just as good management analyzes new investments with regard to the various options, merits, and costs of the investments, management should also understand these components of the technology, processes, and human resource practices which they have inherited over time.

3.4.1 Human Resource Choices

We look at human resource management practices in a number of areas: compensation, hiring and selection, staffing, training, work organization, and employee involvement. Further, we look at these practices as they govern both managerial and non-managerial employees. Both groups play important roles. In branches of retail banks, for example, employees from the manager's office to the teller window sell products and support selling at previously unprecedented levels. Practices in successful retail banks must reinforce the ability of the organization to compete for investment dollars, to solve customers' problems, and to complete transactions quickly and accurately.

The management of human resources may contribute to firm performance in two ways (Wright and Snell 1991). First, good human resource management practices establish skills and competence. Second, good practices drive appropriate behavior of employees. Most generally, firms with practices which build competence and reinforce role behavior consistent with market imperatives and organizational goals are likely to be successful. Specific practices may vary depending on the requirements of markets and strategies, and finding a "best practice" may not be possible. For example, if competitiveness requires continued investment in skill levels of certain employee groups, some banks may train employees extensively while others may focus on recruitment of employees who already possess the requisite skills.

Recent empirical work in this area suggests a number of considerations. First, there may be a generic set of good practices common across the industry. Huselid (1994) finds that "High

Performance Workplaces” as defined by a set of progressive human resource practices are generally associated with higher productivity and better financial outcomes. Second, individual practices may reinforce particular strategies by contributing to the achievement of organizational goals. In the area of compensation, for example, Gerhart, Milkovich and Murray (1992) review empirical studies and note that pay level, pay structure, rules for determination of individual pay, and benefit mixes may significantly affect various aspects of organizational performance. Similarly, training (MacDuffie and Kochan 1991), labor relations (Becker and Olson 1987; Ichniowski 1992), hiring (Holzer 1987), and rules governing employment security (Osterman 1987) have been linked to firm-level outcomes of interest. Third, groups of practices may bundle together, representing an underlying logic which is consistent with a particular strategy (MacDuffie 1991; Arthur 1994; Ichniowski and Shaw 1994). Here the proposition is that consistency across practices is at least as important as individual practices: no single practice is a “silver bullet.”

3.4.2 Technology Implementation Processes

Technology in banking is a key resource in terms of magnitude and importance (Quinn and Paquette 1990; Steiner and Teixeira 1990). In technology management, the selection of projects and their management is crucial. In addition, they must support the business processes desired by the financial institution. The key technological thrusts found in the retail banking survey conducted by Roth and van der Velde (1992) suggest:

- (1) converting to computer systems that provide flexibility in applications and on-line capabilities to better serve customers and increase the capacity of service employees.
- (2) selecting and installing state-of-the-art applications software for all consumer products in order to achieve better service quality and convenience.
- (3) integrating systems due to structural changes in the bank’s organization.

In particular, the authors point out that major technology investments are underway to integrate the traditional front- and back-office systems into a seamless service delivery process.

These and many other studies of information technology suggest that IT is best able to add value when it “informs,” creating new sources of information in an organization rather than simply automating existing processes (Zuboff 1985, 1986). In banking, this trend manifests itself in the desire to provide expertise and information to the people who are in closest contact with customers.

A major challenge in IT management is project selection and control. In assigning technology dollars, the logical approach would be to maximize value per dollar. In a perfect world, management weighs the cost of each technology initiative and its on-going maintenance against its contribution to financial performance. However, in banking, technology goals are often expressed in abstract terms such as “convenience” and thus, firms struggle with measuring the effect of the abstract on the concrete bottom-line.

Once implemented, an advanced technology user will vigorously revisit the assumptions which motivated the initiative and determine whether the benefits, or values, were achieved. To be effective, parties responsible for technology initiatives must be held accountable for the realization of the benefits, thus tying back to the *performance measurement and control* process. When

technology does not satisfy its objectives, the failure should be incorporated into institutional knowledge such that the faulty assumptions or management which contributed to the failure is not repeated in other technology endeavors.

The importance of vigorous cost-benefit analyses cannot be over-emphasized. While most banks employ some sort of justification procedure before allocating resources, in most instances these analyses are not as sophisticated as they should be. Most rely heavily on the assumed performance benefits of fuzzy goals, do not consider the possibility of or plan a reaction to a changing environment, and fail to perform any true post-project evaluation to ensure that the planned level of resources actually produced the anticipated level of benefits. In such a scenario, with no measurement of success, there is no accountability and no future failure prevention.

Even when the success of a project is commonly accepted, this post-project analysis is important. Testing and understanding the relationship between the level of resources anticipated and the level actually consumed to produce the desired benefit adds immeasurably to an institution's ability to continue to predict and produce value through technology. Unfortunately, in the pilot banks, if there is any post-project analysis, most institutions imply that institutional knowledge only comes from failure and that what has worked well has no room for improvement.

3.4.3 Product and Service Delivery Processes

In order to understand how a bank interacts with its customers we examined a subset of the product and service delivery processes. We chose five representative products of the "core" retail bank. The products include consumer checking, CD, home equity loan, small business loan, and mutual funds. For each of these products we examined typical transactions such as opening an account as well as error resolution transactions such as the double posting of a check.

Variation in work-steps and available tools can affect the characteristics of processes. For example, more sophisticated technology may speed up a process through automation. At the same time, technology may lengthen process time but increase the information available to the bank or the customer. Similarly, staffing a particular process with a highly experienced employee may increase speed or accuracy. Combining different levels of technology and human resources has different effects; and there are tradeoffs in results associated with different process designs.

In addition, customers have co-productive effects on processes. As an integral part of the process, the customer is a resource just as the platform representative's time is a resource. In fact, the time required of the customer may be a consideration in particular process designs. Some processes may waste the customers' time, others will not, some processes will take advantage of interaction with the customer to increase sales or the information available to the bank.

Like any other resource, a customer contributes different levels of interaction to the process. Because each customer is different, serving each customer requires different levels of bank resources. For example, serving an elderly customer may require more time than serving a college student. Not only are the demands of each customer different, but the ability to contribute to the success or ease of a process also differs. As such, one difficulty of process design is understanding the various audiences being served.

One way that banks seem to address the needs of various consumer constituencies is through alternative delivery options. These vehicles allow customers to transact essentially on their own time. With the exception of the phone center, channels such as computer banking, voice response systems, and ATMs require no human interaction and allow the customer to bank at an individual

pace. These new channels add a layer of complexity to the process design as multiple channels will now likely reach the same information systems.

No matter the necessary level of tools and human resources to serve customers, effective bank management will design processes which leverage resources, allow for institutional communication, eliminate duplication of efforts, and encourage all the participant functional areas to work toward the common goals of the organization.

3.5 Value Creation

Past attempts to measure productivity in the financial services arena have used traditional measures of productivity. However, the role of the customer in the process makes comparison of these processes to mass production incomplete. To reiterate the thoughts of Delaunay and Gadrey (1992; p. 124):

Finally, the question can be asked whether, for some services...the very concept of productivity, built to analyze mass production, without any consideration of the effects of the service on the customer, is still relevant.

In fact, for both academia and the industry, Delaunay and Gadrey's question has become a foregone conclusion. Traditional methods do not measure resources provided by the customer or benefits provided to the customer even though every bank manager recognizes the role of the customer in the bank's performance. Since banks spend a significant amount of time to improve the customer's interaction with the bank, any measurement exercise which ignores the inputs from and the outcomes for the customer is not comprehensive.

To bridge the gap between traditional productivity measures and difficult-to-measure financial performance, we have developed the value creation component of the framework as an intermediary set of performance indicators. According to the pilot interviews, these indicators reflect effective performance in ways that are more meaningful than the more traditional measures of productivity as they are the goals toward which bank management strives. In addition, they are similar in spirit to the indicators discovered by Roth and van der Velde (1991a) in their survey of retail banking (see Section 1.0). The framework attempts to capture the values created for several of the stakeholders: the organization and its management, the shareholders, and the customer. We describe each of the following values below: customer convenience, precision, efficient cost structure, adaptability, and market penetration.

3.5.1 Customer Convenience

Historically, consumers have chosen financial services based largely on availability and location. Unable to have a 24 hour branch on every corner, competitive financial services organizations seek other ways to meet these demands. With advances in technology and innovations in human resource practices, the concept of convenience has extended well beyond availability and location to imply a wide range of products and services available at any time, from any place. Customers might wish to file loan applications over the phone at 3 a.m. on a Saturday, for example, or to use a short telephone call to transfer funds between investment vehicles from a remote site. The development of ATMs, voice response units, computer banking, and the ability to engage in almost any transaction through these channels illustrates the commitment of the industry to provide customers with whatever they want, whenever they want it.

Rapid turnaround time is also increasingly important in financial services. For example, customers expect firms to be capable of moving money instantly across investment products. Turnaround time on small consumer loans decreased dramatically from weeks to hours in the last few years, a trend that continues across a wider range of products such as home mortgages, re-financing, and second mortgages.

Equally important is the amount of time required of the customer in these co-productive processes. Whether it is standing in the teller line, filling out a loan application, or coming to the branch for a loan closing, the demands placed on the customer must be measured and made as mutually beneficial as possible. Banks walk a fine line between the desire to increase contact with the customer to increase sales and the desire to decrease time with the customer in order to increase convenience to the customer.

While clearly important, convenience is difficult to measure in that it is a value *perceived* by the customer which therefore depends upon the make-up of the customer base (Parasuraman, Zeithaml and Berry 1990). There are certain aspects of convenience which will be more or less important to different segments, and the success of an organization depends on how well it identifies and satisfies the appropriate measures of convenience.

3.5.2 Precision

While customers may make many choices based on convenience, they also expect quality in the delivery of financial services and products. Customers are increasingly willing and able to choose from a large number of investment and loan vehicles as banks compete with non-banks for depositors and investors. Quality may suggest a whole host of things to the customer. Examples include error free statements, checks printed correctly, and the operational soundness of all delivery channels. Banks committed to quality and accuracy will anticipate problems and facilitate a pain free resolution process. In fact banks may require higher levels of precision than their non-bank competitors: one source of advantage over other kinds of organizations lies in the trust consumers place in banks to handle their assets effectively. Mistakes in this process may drive consumers to search for other financial providers.

The competitive environment faced by banks generates two sources of pressure for an error-free operation. First, consumers may be willing to pay a price premium for what they perceive to be responsiveness to their needs: accurate answers to their questions, useful advice about new products, error-free statements, etc. On the other hand, competitors quickly match prices in this market. Thus, even if the bank cannot extract a price premium, precision in operations may be a key contributor to retaining or gaining market share. In one study by the Bank Administration Institute (1993), industry leaders in consumer banking generally believed that other quality-related factors would be more important contributors to the bank's performance than the ability to exercise price leadership.

In addition to the quality provided to the customer, precision in the delivery of financial services and products enhances the performance of the bank by reducing "rework" in the system and hence, costs. Time spent correcting errors may be better spent generating revenue, thereby encouraging all institutions to be concerned about quality.

The ability to make good business decisions also relies on the level of precision in the bank. First, the source information which forms the basis for any decision must be accurate. Second, the institution must have the tools which enable the interpretation of the source information. For example, making good lending decisions requires accurate information from the consumer, a

detailed understanding of the economic environment, and tools such as credit scoring models to facilitate the analysis process. While these decisions may occur without the benefit of sophisticated tools, the ability of the bank to increase precision slightly on an individual credit analysis might translate into systemic improvements.

3.5.3 Efficient Cost Structure

While precision and convenience may differentiate banks, the commodity nature of financial products suggests that any firm unable to manage its cost structure effectively is at a serious disadvantage. Our interviews and pilot survey show that driving down costs by doing more with less is one practice of high-performing banks and thus, banks which fail to seize opportunities to remove costs may be at a disadvantage. Thus, the goal is to maintain the *appropriate* cost structure relative to the business and revenue mix.

It is precisely in this area where traditional measures of total factor productivity (Berger and Humphrey 1992) might be considered. Many retail banks use intricate staffing models to control branch labor costs, and “back office” processing of transactions focuses around taking costs - particularly labor costs - out of these operations. In fact, technology spending in the industry often aims at breaking the link between an increase in business and an increase in costs.

If a reduction of costs could occur in a vacuum, then every organization would try to push the traditional productivity levers. However, a comprehensive analysis should consider the trade-offs between the various value indicators. Efforts to reduce costs might also reduce quality and long-term profitability. For example, if staffing models in bank branches accommodate only the time needed for simple teller transactions, the resulting tight staffing control may inhibit the teller’s ability to engage the customer in cross-selling of other financial products. Similarly, if tellers rush as a result of tight staffing, the bank may experience a disastrous decrease in precision. Thus, we must be careful when analyzing costs not to lose sight of the interconnectedness of value indicators and profit implications of choices between these values (Berger, Hancock and Humphrey 1993).

3.5.4 Adaptability

The first indication of an organization’s adaptability is its willingness to meet the changing demands of the customer. This willingness may be evidenced by pricing flexibility. It also surfaces in the mass *customization* movement making its way through the service industry (Pine 1993). Many customers have individual needs which are not easily satisfied by standard products and services. Not surprisingly then, the need to customize products and services underlies much of the recent IT investment of banks.

In addition to responding to the customer, financial institutions display adaptability in their ability to respond to the marketplace. In competition with non-bank financial institutions, the bank’s challenge is to create competitive products and introduce them to market before losing the chance to compete in the larger industry. The introduction of mutual funds is a perfect illustration. Given the opportunity to partake in the investment market, many banks have been slow to bring their funds effectively to the market.

As change occurs, whether in the development of new products and services or the introduction of new technology, the institution must respond with changes in the business processes. Organizations and processes should be able to withstand and plan for change, as a lack of

flexibility renders a firm unable to respond to changing business conditions.

3.5.5 Market Penetration

Provision of financial services involves ongoing relationships. It also entails frequent interaction between customers and institutions. These interactions present opportunities to sell; that is, to provide customers with further services that meet their needs. High-performing banks take advantage of these opportunities. In part, they use their investments in human resources and technology to increase their share of target markets.

In fact, enhanced market penetration is the expressed goal of much current investment in technology, as well as the motivation behind the reform of management practices. The ability to persuade consumers to buy multiple products from a single institution (“cross-selling”) and to persuade them to do more of their business with that institution (“gaining share of wallet”) contributes substantially to performance.

3.6 *Financial/ Strategic Performance*

One goal of this project is to ascertain the impact of industry conditions, strategy, and the implementation issues inside the gray box in Figure 1 on overall financial performance. We start with the contents of the gray box (the implementation of strategy given industry conditions) for several reasons.

First, the financial performance (ROI, ROA, etc.) of the bank is an outcome of the decisions described in the last section. Management places great emphasis on financial measures. However, the links between these numbers and factors under management control are weak. Broader industry conditions, such as interest rates, have large effects. Asset management decisions having little or nothing to do with efficient operations may also move financial indicators. And accounting decisions have substantial implications. For example, cost allocation between a retail bank and other parts of the bank holding company will affect the measured financial performance of the retail bank independently of its ability to deliver consumer products. Our interviews suggest that banks which are able to do well on our chosen measures of value creation should, however, outperform others in the long run, even on financial measures. Managers consistently express this sentiment; our goal is to establish the extent to which their intuition is correct. To do so, however, we must begin with the “gray box” in Figure 1; that is, those activities over which management has direct control.

Our initial study will be a cross-sectional study of bank performance. In order to correlate financial performance with the actions listed in the previous section - correcting properly for strategy differences and industry conditions - it will be necessary to have a panel data set--longitudinal data is essential. Our goal is to create such a panel data set. To begin, however, we have chosen to focus on the cross-sectional data we can measure; namely, our value creation variables. Financial performance matters and it is part of our research plan for the future; with the current state of our knowledge and data, it simply cannot be pursued in a scholarly manner at this point.

3.7 Inside the “Gray” Box³

Whether a clear set of best practices in retail banking actually exists, ultimately, is a question which requires data rather than theory. The framework we have presented here allows for the possibility that general best practices are identifiable, but also accommodates contingencies. The effectiveness of practices may depend upon their relationships with other practices, organizational goals, and industry conditions. That is to say, rather than identifying best practices, we are open to the possibility that choices in infrastructure and implementation may be better or worse depending upon their alignment with one another and with factors external to the gray box in Figure 1.

As described conceptually the framework may appear relatively static, but it does provide a vehicle through which one can gain insight into more dynamic issues. For example, over the past few years banks have spent a great deal of time, effort, and money on mergers and acquisitions. Under our framework one might consider why expected gains are not often realized from mergers (Berger, Hunter, and Timme 1993). When merging institutions more quickly align practices with the strategies and goals of the new organization, one might expect better performance. Where, on the other hand, infrastructures or implementation choices in the merging organizations are inconsistent, or where the expense of changing management practices exceeds expectations, performance may suffer.

We believe the framework lends itself to empirical analysis of performance questions. We also suspect that we can establish evidence which supports the theory that there are management practices which reinforce one another in order to create value and drive multiple performance outcomes. Similarly, Roth and van der Velde (1991a: p.35) claimed a “counter-intuitive discovery”:

Best-in-class retail banks developed both their operations and marketing capabilities simultaneously, rather than sequentially. As a result, they enjoyed greater profitability and superior performance across the board, but especially on innovation and speed.

That is, the effective blending of management infrastructure and implementation choices, of human resources, technology, and process management may make it possible to achieve better outcomes in a number of areas at once.

³Since we believe that we can understand something about how the forces and practices inside the box in Figure 1 interrelate, the box isn’t “black”; i.e., impenetrable. Thus, it is “gray”; not easy to see into, but not impossible either.

4.0 Measuring Performance - A Research Strategy

To reach our goal of understanding the items within the “gray box” of Figure 1, we have planned the following steps:

I. *Dialogue with Industry Leaders*

Our team visited twelve financial institutions in the summer of 1993 to learn about what the industry considered to be the drivers of performance. We presented our initial framework, which was a direct result of these interviews, to the Wharton Financial Institutions Center Board of Directors in October 1993. After considering the comments from the Board, we developed our pilot survey which spanned topics of human resources, marketing and retail administration, technology, and service and product delivery processes. The original survey is over 200 pages and required thirteen person-days on site to cover approximately twenty-five interviews.

We administered the pilot survey to seven retail banks in the Spring of 1994. After visiting half of the institutions we again met with the Board of Directors (May 1994) to get their opinions and recommendations. We then completed the pilot visits, analyzed the data, and revised the pilot accordingly. We have mailed this revised pilot to the original participants. The revised pilot survey consists of approximately 100 pages of questions with a slightly narrower scope. After analyzing the revised pilot data we will re-visit each institution to present our results and get their feedback. After incorporating their feedback into the pilot, we will have a version of the survey which will serve as the basis for a large-sample survey to be administered in the Fall (see III).

II. *Pilot Survey of Representative Retail Banks*

As stated in Section 1.0, our interviews led us to focus on consumer financial services and, more precisely, consumer banking in the first one and one-half years of the project. We are influenced in this decision by the industry’s traditional view of its competitors. That is, while non-bank financial services produce anxiety about the future, today the main concern rests with other banks. In addition, we need to have a sharp focus to get more comprehensive results about the industry. A pilot survey of seven retail banks was conducted in Spring 1994; see the next section for the details of this survey.

III. *Large-Sample Survey*

Based on the pilot survey, we will conduct a large-sample survey through the Fall 1994.

IV. *Data Analysis*

Spring 1995 will be devoted to testing specific hypotheses concerning the interrelationship between management practices and our outcome measures. Along with traditional regression-based analyses, we intend to utilize state-of-the-art techniques in multivariate frontier estimation (e.g., Data Envelopment Analysis (DEA) and its recent stochastic extensions; see Banker *et al* 1989; Land *et al* 1994; Seiford and Thrall 1990) to address the *mix* or *practice portfolio* questions. That is, what mix of practices, holding constant the industry conditions and strategy, are most efficient? See the next section for an initial list of hypotheses.

In addition to consumer banking, we will begin a similar set of steps in consumer-based insurance (i.e., property and casualty insurance and life insurance) in order to broaden our focus with the consumer financial services arena.

5.0 Measuring Performance - Results of the Pilot Study

The pilot study involved a three-phased approach that began in the summer of 1993 with industry leader interviews. Discussions with these financial service industry executives revealed industry practices, major initiatives and changes throughout the industry, and the major issues facing these institutions. Our team has had discussions with executives at eighteen different financial institutions and has administered the pilot survey at seven retail banks.

From the information gleaned in these interviews, and the work of past productivity studies, the project team developed the pilot survey. The survey, which consisted of over 200 pages of questions, focused on the practices of the various functional areas, business lines, product groups, and the retail network. The administration of the survey required nine person days on-site and included over 20 interviews. To supplement these interviews, the pilot involved observing and mapping seventeen customer service processes in the branches and phone centers of each institution. In total, the pilot surveyed the practices of seven large, geographically spread retail banks with holding company assets of \$230 billion, over 3,000 branches, and a workforce of 116,000 full-time equivalents (FTEs).

The third and current phase of the pilot includes analysis of the survey data, revision of the survey, requests for further information based on these revisions, and a presentation of our analysis to the original participants. The revised survey forms the basis for the instrument which will be used in the large-sample survey scheduled to be administered during the fall of 1994.

5.1 Choice of Management Infrastructure

5.1.1 Resource Management

Method:

The pilot survey investigated the variation in resource management processes and outcomes at each institution by asking questions about resource allocation and by collecting the budgets of each institution. In addition, this analysis relied on publicly available information to establish reporting consistency. The pilot attempted to understand how each institution consumes its resources and how they decide in what area to invest. While the pilot did not focus on the budgeting and capital allocation *processes*, we did survey the analysis required to justify investments and the forum for making the actual decision.

Pilot Observations:

The justification and decision-making process differs widely among the pilot institutions. *Bank D*, for example, requires an extensive cost-benefit analysis for every major investment be it a new branch opening or a major technology investment. After this analysis, a management committee reviews each initiative. In contrast, most of the other pilot organizations had separate committees for major technology investments and for large capital expenses. In effect, these separate committees formally built different decision processes into the management structure of their institutions.

The extent to which resource allocation affects value creation is unclear. Spending in different resource areas affects different value outcomes, and choosing which values to stress involves the

same justifications and trade-offs that resource allocation involves. As a result of the variations and the reliance of this spending on institutional strategy, resource allocation will be a control variable in the large-sample survey.

5.1.2 Information Architecture

Method:

The pilot survey examined each firm's approach to information architecture by looking for a documented architecture and by questioning the bank's commitment to that architecture. This commitment is visible in a firm's assignment of accountability, level of information standardization, and the extent of automation of the collection and dissemination of data.

Pilot Observations:

With regard to automation, every bank reported that it would be useful to disseminate performance information on-line. Given this, it is interesting that none of the seven pilot institutions currently have such on-line information available. Moreover, only *Bank A* and *Bank F* report on-line performance information as a current initiative.

The level of automation in collecting performance information also speaks to a bank's commitment to an information architecture. For example, the systems at *Bank A* and *Bank D* automatically collect a platform representative's sales information at the point of sale. In contrast, *Bank E* and *Bank F* still maintain manual logs given to the branch manager on a daily basis. While both of these methods have the potential to communicate the same information, institutions with a strong information architecture (and thus an automated method for seamless tracking) seem to see performance measurement as an integral step in the delivery process.

Finally, although we have not yet collected all the necessary data, we believe that institutions which enforce a common architecture, especially at the time of mergers, will have improved performance even though they might experience a decrease in local control. A non-pilot bank with which we have had discussions did not enforce a common architecture concerning loan applications and thus had to manage over three dozen different software applications performing the same task. When the institution sought performance data on all the applications combined, it had to make an enormous investment to overlay a performance measurement system on to each of the individual applications. Even with this technological overlay, the integrity of the institution's data was suspect due to the vast number of inputs and outputs to the many systems. We believe that enforcing a common architecture (and systems) upfront is necessary for improved performance.

Propositions:

Institutions which define and enforce a common information architecture experience improved performance.

Institutions with more automated performance information experience improved performance.

5.1.3 Performance Management and Control

Method:

In assessing the ability of organizations to define measures that evaluate their own performance, collect the necessary data, and use this information to direct the organization, the pilot survey focused on the types of reports and measures used by the banks. In addition, our preliminary analysis examined both the appropriateness of this information against the goals of the organization and the ability of the bank to use this information to drive the bank toward these goals.

The pilot seeks information on whether each organization has the correct level of information and on the extent to which management uses the available information to control the organization. This includes level of empowerment, the alignment of accountability, and the use of information to measure and incent positive behavior in all levels of the organization.

Pilot Observations:

One finding of the pilot is that the information used by each bank to manage performance is fairly similar. Each bank seems to use a combination of financial measures, sales volumes, quality indicators, and productivity measures to evaluate performance and make decisions. In addition, each bank uses historical information such as budget variances and competitive comparisons such as peer groups to evaluate relative success. The variation in the actual information used seems tied to the level of detail used to determining success. For example, for each level of the branch staff, *Bank A* measures key performance indicators. For tellers, a component of performance is the number of transactions per FTE while the platform staff has sales volumes as a partial indicator of their success. Similarly, *Bank B* measures sales related behavior for every level of the bank. While platform representatives are measured by unit sales, tellers are evaluated by the number of referrals that they generate through their constant customer flow. While the other institutions focus on the same larger measures, they do not seem to measure behavioral performance with the same level of detail as *Bank A* or *Bank B*.

According to discussions with bank management, each institution seems to have a different philosophy regarding standardized performance measurement. At some banks, for example, every affiliate is responsible for the same financial hurdle rate. If a branch or legal entity does not meet this goal, then management steps in to facilitate improvement. These banks believe that local control is essential for success but measures this success relative to a common standard. In contrast, other banks see each branch as individual and incomparable to any other branch in their organization. Rather than forcing each branch to strive toward a common goal, these banks set performance goals individually for each branch based on a combination of prior performance and market potential.

Propositions:

Institutions which measure the controllable aspects at each level of the organization *and allow management this control* will perform better.

Institutions which manage toward specific controllable values such as convenience, precision, or cost effectiveness will perform better.

5.1.4 Organizational Structure

Method:

In attempting to evaluate the appropriateness and effectiveness of an organizational structure, the pilot survey examined the placement of key functional areas within the retail bank, the effect of technology on organizational structure, and the choices that institutions make regarding centralization, local control, economies of scale, communication, and organizational focus.

Pilot Observations:

One observation in the first phase of the pilot relates to the ability of the retail bank to control the components of success. However, according to the organizational charts provided by each institution, this control does not always exist. *Bank B*, *Bank E*, and *Bank F* each indicate that bank operations report directly to their chief executive rather than to the head of the retail bank. The trade-off here is that the centralization allows for potential economies of scale and increased control but the disadvantage is that the operations have no accountability to the retail bank built in to the organizational structure; that is, a potential problem is that the operations employees have no direct link to the retail customers. A related issue is the location of the phone center. Typically the phone center resides in the operations area but is almost exclusively responsible for customer service issues. If the operations area does not report to the retail bank then there is a potential disconnect between strategy and implementation.

Certain organizational structures seem to encourage economies of scale and the elimination of redundancies. For example, two of the pilot institutions combine many legal entities under one holding company. However, the first allows each entity to maintain local control complete with its own phone center, operations department, and human resource function while the second's consolidated human resource, operations, and marketing departments serve all of its institutions. In essence, the first seems to have a retail bank for each of its many legal entities while the second has one retail structure for its many legal entities. While the first's structure complements its local control philosophy, it contradicts the common goal to remove functional repetition.

The pilot interviews documented communication barriers in several organizations. At one organization, senior executives introduced themselves to each other despite the fact that they all reside in the centralized corporate headquarters. At another organization, management is dispersed geographically, making decision making and communication dependent on the telephone or advance planning.

The legacy of organizational structure is apparent in many of the organizations we surveyed. While certain banks claim strategies that are customer segment, delivery channel, or product oriented, almost every institution organizes itself functionally and geographically. In fact, none of the organizations surveyed are primarily organized around customer segments or delivery channels.

Propositions:

Institutions which organize around the individual strategy of the organization will perform better.

Institutions which consolidate functional areas such as marketing, human resources, and technology at the holding company level create economies of scale, eliminate functional redundancies, and leverage off shared resources and institutional knowledge. Thus they will perform better.

Institutions in which the retail bank controls the contributors to its success will perform better.

5.2 Implementation Choices

5.2.1 Human Resource Choices

Method:

The pilot survey examined six categories of human resource management practices: compensation, hiring and selection, staffing, training, work organization, and employee involvement. The survey documented a variety of practices in each area, measuring both the presence or absence of particular practices as well as the intensity with which the various banks engaged in them.

Pilot Observations:

We began the study searching for practices which we believed would drive the creation of value in the categories identified above, both in building a work force with the right skill set and in incenting employees to perform. Perhaps the most striking finding from the pilot survey on the behavioral side is the absence of practices characteristic of what have been termed “High-Performance Work Organizations” (HPWOs) (Osterman 1994; Huselid 1994). For example, none of the pilot banks have a majority of their employees engaged in employee involvement programs, quality circles, or similar schemes. The extent to which non-managerial employees influence decisions in a number of key areas from technology deployment and job design to hiring and other personnel decisions is low or very low in all the respondent organizations.

Practices which characteristically support HPWOs are also scarce. None of the banks has a “pay-for-skills” system for any employees. While all the banks give merit-based increases, the use of compensation packages which consist of truly variable pay is low: only *Bank B* and *Bank C* report that teller pay has a variable component. Platform employees’ pay has a variable component in four of the banks; typically this is a modest sales incentive (sales incentives are also present for officers in five of the banks). At four of the seven respondents, branch managers’ pay varies with the performance of their branches and two of those banks also have small branch-based pay incentives for other employees. Only one, *Bank G*, has a compensation incentive based on the overall performance of the organization.

Nor are the banks particularly innovative in building a workforce with the proper skill set. With respect to selection, for example, all the banks engage in interviewing and reviewing of previous work records, and several use skills tests to screen teller applicants. But only *Bank B* uses further selection procedures (personality tests) for tellers or platform employees. *Bank B*, *Bank D*, and *Bank E* each use psychological tests and/or group exercises for managers and officers.

Most of the employees within particular job categories in the banks are broadly skilled. That is, in spite of some moves toward “peak-time” staffing, particularly of tellers, nearly all employees within a particular job category do nearly all the tasks associated with that job. This may create flexibility and remove the necessity for the more formal job rotation programs which are part of many HPWOs. However, the general extent to which employees are flexible across categories is not high. For example, on only two of the seven banks are more than 60% of the platform employees trained to do teller tasks, and in only two banks are more than 20% of the tellers trained to work on the platform.

If, then, most practices characteristic of HPWOs have not been commonly adopted in retail banking, there are two competing hypotheses which might explain this general finding. First, it is possible that retail banking is an inappropriate setting for employee involvement and other practices characteristic of HPWOs, and that the performance results associated with HPWOs in other studies would not be realized in retail banks. More elaborate schemes for employee empowerment, group incentives, or cross-training may not be necessary in retail banking: perhaps they are neutral or even negatively associated with performance outcomes. It is, however, possible that the practices have been slow to diffuse even though they (or a subset of them) have positive effects on performance. If this is the case, then we might expect that banks further along toward adoption of practices characteristic of HPWOs will have better performance outcomes, other things being equal. The ultimate answer to this debate is empirical.

In order to probe this question, we take a closer look at variation across some practices. Generally, one might investigate whether banks with higher levels of employee involvement and cross-training out-perform other banks. Both *Bank A* and *Bank B*, for example, report higher levels of employee involvement than the other banks. *Bank B* consistently reports more latitude and discretion for employees, especially platform employees, to adjust product features and serve customers. *Bank B* also reports the highest levels of cross-training between tellers and platform employees; *Bank E*, *Bank F*, and *Bank G* each report some cross-training; *Bank A*, *Bank C*, and *Bank D* report the least.

Different human resource issues also suggest themselves for different employee groups. For example, issues of compensation, training, and job design for tellers are confounded by the demands of productivity-based staffing models. These models typically encourage bank branches to employ more “peak-time” and part-time tellers. But these part-time employees, who generally do not receive benefits, may feel less committed to the organization. The share of tellers working less than full-time varies from 40% to 84%. An open question is whether the direct labor cost savings realized from the use of part-timers is outweighed by other costs such as lost sales, errors, inferior service, or increased training requirements.

On the platform, where staffing models have not yet become commonplace and most employees work a regular shift, questions around performance and customer service may center around job design and the effective use of down-time. Here one might ask whether using platform employees to engage in off-line tasks such as tele-marketing (*Bank B*) or substituting for tellers (*Bank F*) enhances performance outcomes.

Further issues for platform employees and managers center around incentive pay and selection. For branch managers, for example, the extent to which pay is “at risk” varied from over 20% at *Bank D* to less than 10% at *Bank C*, *Bank F*, and *Bank G*. Practices regarding internal promotion to these key jobs also vary: *Bank B* hires only 10% of its platform employees from outside the bank, for example, while *Bank E* hires 95% from the outside. Again, the question remains open as to which practices are more likely to be associated with better performance.

Propositions:

Generally, higher levels of employee empowerment, small-group and large-group incentive pay, and cross-trained employees will lead to better organizational performance.

Practices have stronger effects where bundles of practices taken together represent a coherent human resource strategy.

Staffing decisions, promotion patterns, job design, and different kinds of individual incentive

programs may also have effects on organizational performance; the direction of the effects is an open question.

5.2.2 Technology Implementation Processes

Method:

The pilot survey examined the effect of technology on the structural organization as well as the way each organization views the role of technology in competitiveness. In addition, the pilot surveyed the goals of each institution in technology implementation and their selection process.

Pilot Observations:

Technology implementation in retail banks can be characterized by whether a bank uses technology to achieve a leadership position or maintain different levels of competitiveness with the rest of the industry. *Bank A and Bank B* each see technology as a competitive advantage and deploy large amounts of resources to maintain this edge. Other institutions, such as *Bank C* and *Bank G*, see technology as a way to increase convenience to the customer, increase precision, and reduce costs. *Bank E* and *Bank F* assume that, based on the environment and competitive positioning, R&D dollars will never produce the necessary level of benefit. These banks focus technology projects on increasing efficiency and wait until other institutions have refined the technology or develop only when they have control of a niche product or service.

As a result of these different philosophies, the pilot institutions are spending their technology dollars in different ways as described in Table 1:

Table 1. Technology Spending for Value Creation

Institution	Decision Making	Efficiency	Customer Interface	Other
<i>Bank A</i>	10%	20%	0%	70%*
<i>Bank B</i>	5%	35%	60%	0%
<i>Bank E</i>	5%	50%	5%	40%
<i>Bank G</i>	25%	50%	25%	0%

**Bank A* describes its “other” spending as directly related to competitive advantage.

Bank A and *Bank B* have spent their money on highly sophisticated platform technology which supports aggressive marketing efforts and increases customer interaction in the routine processes. For example, *Bank B*’s platform system displays an image of a potential check on screen so that the customer can verify the accuracy of the information before ordering the checks. Similarly, *Bank A*’s platform system prompts the platform representative to recognize sales opportunities and explain product details to the customer. *Bank C* and *Bank G* seem to be using technology to standardize and automate their branch systems, while *Bank E* and *Bank F* focus their spending on basic levels of automation and customer service.

Table 1 also shows that in allocating technology dollars, banks do consider the impact of technology on value creation. To justify technology spending, all the pilot banks engage in a pre-project analysis which measures the cost of the project against the anticipated benefits. However, while these institutions articulate the objectives of the technology projects in terms of value, none of the banks successfully measure the value creation through post-project analysis.

While some organizations go beyond using technology to decrease costs and improve productivity, this is a primary goal for all organizations making a significant investment in technology. Spending in this area seems to decrease the time required to satisfy customer demands, increase precision by improving decision making abilities, increase the availability of information, and increase convenience to the customer. While the specific effects of technology on value creation are detailed later, Table 2 outlines the types of technology currently in use at the pilot institutions (a *credit scoring model* is an automated way to assess a loan application; *loan application processing software* facilitates the automated printing of the correct documents; an *on-line research system* is the electronic communication of research requests; *marketing/ cross-sell prompts* is a decision support tool that suggests which products a particular customer might be interested in; a *VRU* is an automated voice response unit that handles calls to the phone center electronically; *on-line sales tracking* automatically captures sales statistics at the point of sale; *windows based platform software* is software with a higher user interface; and *loan by phone* is the ability to apply for a loan without entering the branch):

Table 2. Technology in Use at Pilot Institutions

	<i>Bank A</i>	<i>Bank B</i>	<i>Bank C</i>	<i>Bank D</i>	<i>Bank E</i>	<i>Bank F</i>	<i>Bank G</i>
Credit Scoring Models	not yet completed	not yet completed	not yet completed	not yet completed	not yet completed	no	not yet completed
Loan Application Processing S/W	yes	not yet completed	yes	yes	no	no	no
On-line Research System	yes	yes	yes	yes	no	no	no
Marketing/ Cross Sell Prompts	yes	yes	not yet completed	no	no	no	no
VRU	yes	yes	yes	yes	yes	yes	yes
On-line Sales Tracking	yes	no	not yet completed	yes	not yet completed	no	no
Windows Based Platform Software	yes	yes	no	yes	yes	no	no
Loan By Phone	yes	yes	yes	no	yes	no	no

Propositions:

The following practices with regard to technology implementation increase the likelihood of project success and enhance overall bank performance:

- Relating technology projects directly to value creation.
- Extensive pre and post project cost-benefit analyses and accountability.
- Centralized decision making.

More automation of alternative delivery (e.g., banking from home via PC) leads to improved performance.

More automation of existing delivery (e.g., platform automation, voice response unit (VRU)) leads to improved performance.

The automation of entire processes (rather than single steps) leads to improved performance.

5.2.3 Product and Service Delivery Processes

Method:

In looking at delivery processes, the pilot team examined the different methods to satisfy 17 customer requests at each institution. The team produced a process map for each process which included characteristics such as process steps, cycle time, activity time, the number of departments involved, and the level of automation (see separate document on process variation for a complete set of the process maps).

Pilot Observations:

One of the most surprising observations of the pilot study is the variation in the steps required to complete the same transaction at different banks. As a result of different technology, work-steps, and organizational structures, satisfying the same customer request at different institutions requires the involvement of different departments, and different amounts of time. For example, Table 3 illustrates that opening a checking account may take anywhere from five days at *Bank D* to seventeen days at *Bank E* (*cycle time* is the total time to complete the process; *activity time* is the amount of time in the process where work is being performed; *hand-offs* is the number of times that work is passed from one employee to another; *people* is the number of people involved; *departments* is the number of departments involved; and *screens* is the number of screens required on the software applications):

Table 3. Comparison of Process Characteristics: Open a Checking Account

	Cycle Time	Average Activity Time	Hand-offs	People	Departments	Screens	Approvals
<i>Bank A</i>	8.5 days	15 min	1	2	2	19	0
<i>Bank B</i>	6 days	8.5 min	2	3	3	22	0
<i>Bank C</i>	8 days	10 min	2	3	3	7	0
<i>Bank D</i>	5 days	10 min	2	3	3	36	0
<i>Bank E</i>	17 days	22 min	3	4	4	22	0
<i>Bank F</i>	14 days	40 min	5	3	2	11	1
<i>Bank G</i>	7 days	4 min	3	4	4	9	0

Similarly, Table 4 illustrates that *Bank A* replaces a lost ATM card in two and a half days, while *Bank F* requires fourteen days:

Table 4. Comparison of Process Characteristics: Replace a Lost ATM Card

	Cycle Time	Average Activity Time	Hand-offs	People	Departments	Screens
<i>Bank A</i>	2.5 days	11 min	1	2	2	15
<i>Bank B</i>	6 days	6 min	1	2	2	6
<i>Bank C</i>	4 days	2 min	1	2	2	2
<i>Bank D</i>	4 days	7.5 min	2	2	3	2
<i>Bank E</i>	10 days	8 min	2	3	5	5
<i>Bank F</i>	14 days	7.5 min	6	7	3	4
<i>Bank G</i>	6 days	5 min	1	2	2	6

With regard to technology, each bank uses different software applications and a different number of forms to complete each process. For example, opening a checking account at *Bank C* requires the platform representative to complete seven screens while the same transaction at *Bank D* requires 36 screens. It is interesting that despite the seemingly cumbersome *Bank D* application software, the screen-intensive process actually consumes less time than the process with less software demands, a disconnect which seems to correspond to the type of application software in use. In some instances, institutions which use Microsoft Windows-based applications require many more screens to complete a transaction. However, these banks collect more information about their customers and enhance their ability to increase sales by building cross-sell suggestions into the application process.

Another observation of the screen-intensive process is that these organizations tend to automate the collection of sales information. *Bank A*, *Bank B*, and *Bank D* track each platform representatives' sales when they enter the new account on the system. Moreover, the processes encourage greater interaction with the customer as they suggest additional products and contain screens which explain product features to the customer.

Along with the differences in work-steps, each institution allows a different level of functionality through alternative delivery. For example, *Bank B* allows customers to open checking accounts over the computer and to apply for home equity loans through the phone center, an option that allows customers to receive funds in as little as 24 hours. Other institutions require the customer to visit the branch to complete the same transactions. Greater access through alternative delivery may have contradictory effects on the process. For instance, while the ability to apply for accounts or loans over the phone may decrease the time required from the customer, it may also require the bank to introduce special steps to safeguard against fraud.

Another interesting process variation is the level of redundancy. The small business loan application process highlights this characteristic in that banks such as *Bank E* and *Bank G* perform loan analysis both in the branch and in a centralized credit analysis area. Representatives in these banks spend many hours reviewing the customer's financial information and writing an evaluation of the credit, only to send the loan package to an underwriter who repeats the same analysis and makes the ultimate decision. These institutions emphasize the personal relationship between the banker and the customer at the expense of potential efficiencies. In contrast, other institutions send the loan application and the financials directly to the underwriting department preferring to draw upon the expertise of the credit officers and shorten the process.

The presence of such inefficiencies highlights a surprising realization. Although selling products and providing service to customers is the main objective of a bank, many of the pilot institutions were unclear about the requirements to actually complete these tasks. None of the institutions seemed to have detailed knowledge about the steps or resources required to complete basic tasks. Process flows are non-existent at most institutions and the pilot survey did not reveal any institution which had undergone an activity based costing exercise or a functional cost study. In fact, except at the most automated institutions, workflow seems to be something that develops over time without any analysis of the cost involved in various options.

Bank F, for example, described a phone center process in which the phone representative wrote information on one piece of paper, only to recopy it onto another form for processing. In addition, *Bank F* phone representatives described several processes in which they recorded a problem and then forwarded it to the branch for processing. Not surprisingly, the branch personnel report that if a customer comes to the branch with a balance inquiry or to report a lost ATM card, the platform representative directs the customer to a phone bank with direct access to the telephone center. These types of inefficiencies are not individual to *Bank F*, although the less automated and more paper intensive a bank is, the more inefficient it seems.

Propositions:

Technology enabled processes increase efficiency, precision, and convenience, as well as increasing the amount of information available to the bank on both the customer base and the sales staff.

Processes design which takes advantage of the customer interaction will increase penetration and convenience.

Institutions which have made a commitment to logical process design will have enhanced performance.

5.3 Value Creation

Our discussion of value creation is in large part the result of the pilot study. As the observable and measurable indicators of performance in retail banking, this section highlights the information collected through the interview and survey process.

5.3.1 Customer Convenience

Method:

In evaluating convenience to the customer, the pilot surveyed several ways that banks create convenience. First, we looked at total availability to the customer as a measure of the amount of time that banking services, through all delivery channels, are available to customers. This includes branch hours, ATM hours, access through a voice response system, and the availability of all other channels such as computer banking or non-traditional branch options. In addition, the pilot assessed the level of functionality available through alternative delivery. For example, the pilot assessed the ability to perform various transactions without ever coming to a branch. Finally, the pilot assessed the time to meet a customer's demand and the time required of customers in the process.

Pilot Observations:

One measure of convenience to the customer is the amount of availability that the banks provide through their various distribution channels. Some banks provide continual access through 24 hour ATM machines, phone centers, and VRU (voice response unit) service, while other banks do not need to provide this level of access as a result of their particular market. Table 5 illustrates the variation in weekly availability:

Table 5. Average Weekly Availability for Delivery Channels

Delivery Channel	<i>Bank A</i>	<i>Bank B</i>	<i>Bank C</i>	<i>Bank D</i>	<i>Bank E</i>	<i>Bank F</i>	<i>Bank G</i>
Branch	56	56	36	45	37	50	40
Phone Center - Reps	168	57	68	168	64	119	168
Phone Center - VRU	168	168	168	168	119	168	168
ATM	168	168	168	168	168	168	168
PC from home	168	147	147	0	0	0	0

According to the survey responses, every institution except *Bank E* provides 24 hour access through ATMs and voice response systems. However, *Banks A, D, and G* provide phone center representatives 24 hours per day and only *Bank A* provides 24 hour access via personal computer.

In attempting to create convenience for customers, all the pilot banks are attempting to increase the service provided without a branch visit. Table 6 illustrates the variation in the institutions ability to accommodate transactions without going to the branch:

Table 6. Transactions Handled Without Branch Visit

	<i>Bank A</i>	<i>Bank B</i>	<i>Bank C</i>	<i>Bank D</i>	<i>Bank E</i>	<i>Bank F</i>	<i>Bank G</i>
Balance Inquiries	yes	yes	yes	yes	yes	yes	yes
Checking Account Opening	yes	yes	no	no	yes	no	no
Loan Application (consumer)	yes	yes	yes	no	yes	no	no
Error Correction	yes	yes	yes	yes	yes	yes	yes
CD Sale	yes	yes	no	no	yes	no	yes
Lost ATM Card	yes	yes	yes	yes	yes	yes	yes
Stop Payment	yes	yes	yes	yes	yes	yes	yes

For sophisticated banks such as *Bank B*, this means handling a large range of transactions through the phone or the personal computer, including opening accounts or applying for loans. In the case of less advanced banks, services outside the branch may include only basic transactions such as balance inquiries.

Another measure of convenience to the customer is the speed of satisfying a need. Measuring from the initial contact to the point in the process where satisfaction occurs indicates a bank's responsiveness to the needs of the customer. Table 7 illustrates the variation with respect to time required to satisfy particular customer requests:

Table 7. Time Required to Satisfy Customer Request

Transaction	<i>Bank A</i>	<i>Bank B</i>	<i>Bank C</i>	<i>Bank D</i>	<i>Bank E</i>	<i>Bank G</i>
Home Equity Loan Disbursement	2.5 weeks	24 hours	2 weeks	6 days	1.5 weeks	2 weeks
Small Business Loan Disbursement	1.5 weeks	2 weeks	not yet completed	1 week	1.5 weeks	1.5 weeks

While the time to satisfy a customer's request indicates the bank's commitment to convenience, another interesting measure is the amount of time during which a customer participates in the process (see Table 8). For example, to apply for a checking account, a customer must often come to the branch and fill out an application or sit while a platform representative fills out the application on-line. The complexity of the account application, the speed of the system software, and the extent to which a bank tries to turn any customer interaction into increased sales will determine the resources required of the customer. The time required of the customer in receiving service from the bank illustrates the co-productive nature of the financial service process. Table 8 illustrates the variation with respect to customer participation time:

Table 8. Customer Time Required in Process

Transaction	<i>Bank A</i>	<i>Bank B</i>	<i>Bank C</i>	<i>Bank D</i>	<i>Bank E</i>	<i>Bank G</i>
Home Equity Loan Disbursement*	1.5 hours	2 hours	not yet completed	1 hour	1.25 hours	1.5 hours
Small Business Loan Disbursement*	2 hours	3 - 4 hours	1.5 hours	2.25 hours	2 hours	1 hour

* Generally involves application and closing procedures

5.3.2 Precision

Method:

Every institution has concerns surrounding quality and precision; however, it is difficult to quantify front-end or branch precision. Instead, the pilot observed several factors which speak to an institution's level of concern for and effectiveness in planning for error correction. To this end, one focus of our process analysis was how complicated the error resolution is. In addition, we surveyed the empowerment or discretion of bank employees to resolve problems.

Besides precision from the customer's perspective, the pilot considered the bank's efforts to increase precision for its own benefit. For example, banks might improve the predictive accuracy of credit analysis by using credit scoring models or decrease transcription errors by opening new accounts directly on-line.

Pilot Observations:

The pilot banks shared one characteristic concerning precision: they rarely used information on error rates, required re-work, or other traditional indicators of quality. Most institutions reported fairly similar, low error rates associated with the products and processes documented in the pilot study. However, we are not yet convinced that the variation across banks is small or trivial. We are exploring alternative methods of gathering comparable data on precision (for example, customer surveys).

However, through the examination of aspects of process design we have begun to understand how to differentiate performance in this category. The practices of the respondent institutions speak to the level of concern each institution has for problem resolution. For example, each bank responded that both branch managers and platform representatives are empowered to correct errors. Institutions such as *Bank B*, however, have developed sophisticated tools to prevent errors and to deal with errors when they occur. One example of *Bank B's* dedication to precision is the on-screen check image by which the customer verifies the accuracy of the information requested on the check. Another example is an automated problem tracking system that logs problems submitted to the research area and maintains a running list of problems still unresolved. Only a few of the surveyed institutions have an automated means of communicating with the research department, and only *Bank B* has this tracking system. Other institutions request research by filling out a form and faxing or interoffice mailing it to the research department.

Besides anticipating the need for customer precision, banks can work toward improving their own level of precision through sophisticated decision support tools. With the exception of *Bank F* the pilot institutions currently use credit scoring models to evaluate potential loans. Most banks use staffing models to provide the appropriate level of staff for customer service needs, and many institutions either use, or are in the process of moving to, centralized loan processing groups to ensure that each loan receives the attention of an experienced underwriter.

5.3.3 Efficient Cost Structure

Method:

The pilot survey attempts to examine the need for banks to control costs without sacrificing other values to a harmful extent. With regard to customer costs, the pilot asked each bank about its pricing relative to the marketplace.

Pilot Observations:

With regard to cost effectiveness for the consumer, the pilot survey asked each bank to place themselves in their market according to price. The majority seems to operate from a position of strength in the market place, paying average or lower than market rates for deposits and charging higher than average fees for checking accounts. Table 9 illustrates the variation with respect to product pricing relative to the corresponding markets:

Table 9. Product Pricing Relative to the Market

	Deposit Rates	Loan Rates	Checking Fees
<i>Bank A</i>	average	average	average
<i>Bank B</i>	low	higher	highest
<i>Bank C</i>	average	low	higher
<i>Bank D</i>	average	higher	higher
<i>Bank E</i>	lower	lower	higher
<i>Bank F</i>	higher	average	low
<i>Bank G</i>	average	average	average

This pricing analysis supports the connection between high service and high costs, as *Bank B* charges extremely high fees for its technologically advanced service while *Bank F* charges average loan rates and lower-than-average checking fees.

Another illustration of the need to achieve the right balance between cost and value creation, is the experience of *Bank D* with sales incentives. Seeking to encourage revenue growth through selling

multiple products, *Bank D* began a variable pay system which overcompensated its sales staff relative to the market. While sales increased, the cost of the motivation was so extreme that it was not an efficient means of producing revenue. This year, *Bank D* has adjusted the levels of sales points attributable to each sale.

We are continuing to explore more traditional measures of factor productivity by combining data from the pilot survey with publicly available figures. In the pilot phase, we found difficulty in collecting many of the measures we had hoped to use. Further analysis of this data will be done after the revised pilot survey is completed.

5.3.4 Adaptability

Method:

As mentioned in Section 3.5.4, our interest is in assessing an institution's adaptability to its customers as well as to their marketplace. In the pilot survey, an institution's willingness to adjust price, rates or fees was a measure of adaptability to the customer. Marketplace adaptability surrounded an institution's handling of the mutual fund product. We chose this product as it is one of the few new products recently developed. (As of this printing, we have not yet completed the mutual fund data collection.)

Pilot Observations:

As stated previously, most institutions do not empower their customer service representatives to negotiate the price or rates of their products. Table 10 highlights the home equity loan product as an example; note that the results differ little for the other products.

Table 10. Authority to Negotiate Home Equity Loan Rates and Fees

	Rate		Fees	
	Platform	Manager	Platform	Manager
<i>Bank A</i>	no	no	no	yes
<i>Bank B</i>	no	no	no	yes
<i>Bank D</i>	no	yes	no	yes
<i>Bank E</i>	no	no	no	no
<i>Bank F</i>	no	yes	no	yes
<i>Bank G</i>	no	no	no	yes

5.3.5 Market Penetration

Method:

This category was added as a result of the initial pilot survey. We are obtaining measures which are comparable across organizations in the revised pilot.

Conclusion

Managers in consumer financial services typically assume that improvement in one area of performance is largely at the expense of decreased performance in other areas. That is to say, convenience, precision, cost savings, revenue growth, and adaptability can each be enhanced, but must be traded off against one another. This is only partly true. For example, in some organizations we documented very high levels of technology spending aimed at increasing precision or the ability to cross-sell products. We also found that some organizations had settled for limits on convenience, believing that further decreases in turnaround time, for example, would be too expensive or would result in unacceptable levels of errors.

However, one strong proposition has emerged from the pilot study but awaits testing with a broader data set and better non-financial performance measures. We believe that better management practices can move outcomes in a number of areas simultaneously. That is, through effective process design, use of technology, and management of human resources institutions can improve performance in multiple categories. We saw examples of this frequently: well-designed processes, with proper technology, appropriately staffed and managed, led to breakthroughs in performance. Errors decreased as did customer waiting time; satisfied customers were more likely to retain accounts and be cross-sold new ones; there were cost savings; there was an increase in adaptability and availability.

The general point is that while there may be trade-offs between performance outcomes, managing these trade-offs may not be critical in high-performing organizations. Rather, we believe that successful financial service organizations will be those which find processes and practices that enhance multiple measures of performance. While this may seem “counter-intuitive” (Roth and van der Velde 1991a) to those with industry experience, there do exist precedents for the assertion. To take one example from manufacturing, auto assembly plants which had moved most closely to the “lean production” paradigm, had both lowest levels of assembly defects and highest levels of labor productivity: other plants continued to trade off quality for productivity (MacDuffie 1991). Our pilot work represents a starting point for understanding the relationships between practices and outcomes, and setting these relationships in the context of broader organizational goals and industry conditions.

References

- Abegglen, J. and J. G. Stalk (1985). *Kaisha: The Japanese corporation*. New York, Basic Books.
- Arthur, J. (1994). "Effects of human resources system on manufacturing performance and turnover," *Academy of Management Journal* 37(3), 670-687.
- Bain, J.S. (1959). *Industrial organization*. New York, Wiley.
- Banker, R. D. (1989). "An introduction to data envelopment analysis with some models and their uses," *Research in Governmental and Nonprofit Accounting* 5.
- Barney, J. B. (1986). "Strategic factor markets: expectations, luck, and business strategy," *Management Science* 32, 1231-1241.
- Barney, J. B. (1991). "Firm resources and the theory of competitive advantage," *Journal of Management* 17, 199-220.
- Bauer, P.W. and D. Hancock (1993). "The efficiency of the Federal Reserve in providing check processing services," *Journal of Banking and Finance* 17, 287-330.
- Beatty, S. E. and B. E. Gup (1989). "A guide to building a customer service orientation," *Journal of Retail Banking* 11(2), 15-22.
- Becker, B. E. and C. A. Olson (1987). Labor relations and firm performance. *Human Resources and the Performance of the Firm*, Eds. M. M. Kleiner, R. N. Block, M. Roomkin and S. W. Salsburg. Madison, IRRA.
- Berger, A.N., D. Hancock, et al. (1993). "Bank efficiency derived from the profit function," *Journal of Banking and Finance* 17, 317-348.
- Berger, A.N. and D. B. Humphrey (1992). Measurement and efficiency issues in commercial banking. *Output Measurement in the Services Sector: National Bureau of Economic Research Studies in Income and Wealth*, Ed. Z. Griliches. Chicago, IL, University of Chicago Press.
- Berger, A.N., W. C. Hunter, et al. (1993). "The efficiency of financial institutions: a review and preview of research past, present and future," *Journal of Banking and Finance* 17, 221-250.
- Blackwell, D.W., J. A. Brickley, et al. (1994). "Accounting information and internal performance evaluation: Evidence from Texas banks," *Journal of Accounting and Economics* 17(3), 331-358.
- Brynjolfsson, E. and L. Hitt (1993). "Is information systems spending productive? New evidence and new results," *Working Paper, Coordination Laboratory, MIT*, 3571-3593.
- Cappelli, P. and H. Singh (1992). Integrating strategic human resources and strategic management. *Research Frontiers in Industrial Relations and Human Resources*, Eds. D. Lewin, O. S. Mitchell and P. D. Sherer. Madison, IRRA.
- Caves, R. E. and M. Porter (1977). "From entry barriers to mobility barriers: conjectural decisions and contrived deterrence to new competition," *Quarterly Journal of Economics* 91, 241-262.

Clark, K. (1989). "Project scope and project performance: the effect of parts strategy and supplier involvement on product development," *Management Science* 35, 1247-1263.

Cohen, M. A., J. Eliashberg, et al. (1992). "New product design strategy analysis: a modeling framework," *Decision Sciences Working Paper 92-11-05*, The Wharton School, University of Pennsylvania, Philadelphia, PA.

Cohen, M. A., J. Eliashberg, et al. (1992). "New product development: performance, timing and the marketing-manufacturing interface," *Decision Sciences Working Paper 92-04-01*, The Wharton School, University of Pennsylvania, Philadelphia, PA.

Council, N. R. (1994). *Information technology in the service society*. Washington, DC, National Academy Press.

Davenport, T. H. (1993). *Process innovation: reengineering work through information technology*. Boston, Harvard Business School Press.

Davenport, T. H. and J. E. Short (1990). "The new industrial engineering: information technology and business process redesign," *Sloan Management Review Summer*, 11-27.

Delaunay, J.-C. and J. Gadrey (1992). *Services in economic thought: three centuries of debate*. Boston, Kluwer.

Dierick, I. and K. Cool (1989). "Asset stick accumulation and sustainability of competitive advantage," *Management Science* 35, 1504-1511.

Donnelly, J., James H., J. L. Gibson, et al. (1989). "The behaviors of effective bank managers," *Journal of Retail Banking* 10(4), 29-37.

Editor (1991). "A tale of teller turnaround," *ABA Banking Journal May*, 20,22.

Fried, H. O., C. A. K. Lovell, et al. (1993). "Evaluating the performance of U.S. Credit unions," *Journal of Banking and Finance* 17, 251-266.

Fuchs, V. (1968). *The service economy*. New York, Columbia University Press.

Furash, E. E. (1992). "Changing markets and demographics shape the future of community banks," *Bottomline* 9, 11-14.

Gerhart, B., G.T. Milkovich, et al. (1992). Pay, performance, and participation. *Research Frontiers in Industrial Relations and Human Resources*, Eds. D. Lewin, O. S. Mitchell and P. D. Sherer. Madison, IRRA.

Griliches, Z. (1992). *Output measurement in the services sector: national bureau of economic research studies in income and wealth*. Chicago, IL, University of Chicago Press.

Herring, R. J. and A. M. Santomero (1991). "The role of the financial sector in economic performance," *Study Prepared for the Kingdom of Sweden's Productivity Commission*, Stockholm.

Holzer, H. J. (1987). Hiring procedures in the firm: their economic determinants and outcome. *Human resources and the performance of the firm*, Eds. M. M. Kleiner, R. N. Block, M. Roomkin and S.W. Salsburg. Madison, IRRA.

Huselid, M. A. (1994). *"The impact of human resource management practices on turnover, productivity, and corporate performance," Working Paper, Institute for Management and Labor Relations, Rutgers University, NJ.*

Ichniowski, C. (1992). Human resource practices and productive labor-management relations. *Research frontiers in industrial relations and human resources*, Eds. D. Lewin, O. S. Mitchell and P. D. Sherer. Madison, IRRA.

Ichniowski, C., K. Shaw, et al. (1994). *"The effect of human resource management practices on productivity," Working Paper, Columbia University, New York.*

Land, K. C., C. A. Lovell, et al. (1994). *"Chance-constrained data envelopment analysis," Managerial and Decision Economics, Forthcoming.*

Leibenstein, H. (1966). *"Allocative efficiency versus 'X-inefficiency," American Economic Review 56, 392-415.*

Lichtenberg, F. R. (1993). *"The output contributions of computer equipment and personnel: a firm-level analysis," Working Paper, Columbia Business School, Columbia University, New York.*

Lippman, S.A. and R.P. Rumelt (1982). *"Uncertain imitability: an analysis of inter-firm differences under competition," Bell Journal of Economics 13, 418-438.*

Long, R.H. (1988). *"High-performance bank culture," Journal of Retail Banking 10(3), 13-22.*

Lynch, D.B. (1991). *"New technology does not mean a less costly back office," Bottomline March-April, 28-31.*

MacDuffie, J.P. (1991). *"Beyond mass production: flexible production systems and manufacturing performance in the world auto industry," Unpublished Ph.D. Dissertation, Massachusetts Institute of Technology, Cambridge, Mass.*

MacDuffie, J.P. and T. A. Kochan (1991). *"Does the U.S. underinvest in human resources? Determinants of training in the world auto industry," Fifty-First Annual Meeting of the Academy of Management, Miami Beach.*

Makadok, R. J. (1992). *"The 'winner's competitive cycle' in the money market mutual fund industry: the dynamics of the competitive engine," Discussion Paper, Fishman-Davidson Center, The Wharton School, University of Pennsylvania, Philadelphia, PA.*

McKinsey (1992). *"Service sector productivity," McKinsey and Company, Inc. , Washington, DC.*

Morrone, M. (1992). *Production processes and technical change.* London, Cambridge University Press.

Nelson, R. and S. Winter (1982). *An evolutionary theory of economic change.* Cambridge, Mass, Harvard University Press.

Norsworthy, J. R. and S. L. Lang (1992). *Empirical measurement and analysis of productivity and technological change.* Amsterdam, North Holland.

Osterman, P. (1987). Turnover, employment security, and the performance of the firm. *Human resources and the performance of the firm*, Eds. M. M. Kleiner, R. N. Block, M. Roomkin and S. W. Salsburg. Madison, Wisc, IRRA.

Osterman, P. (1994). "How common is workplace transformation and who adopts it?," *Industrial and Labor Relations Review* 47(2), 173-188.

Parasuraman, A., V. A. Zeithaml, et al (1990). *Delivering quality service*. New York, Free Press.

Parsons, C. K., R. C. Liden, et al. (1991). "Employee response to technologically-driven change: the implementation of office automation in a service organization," *Human Relations* 44, 1331-1356.

Pine, B. J. (1993). *Mass customization: the new frontier in business competition*. Boston, Harvard Business School Press.

Porter, M. E. (1980). *Competitive strategy*. New York, Free Press.

Quinn, J. B. and P. C. Paquette (1990). "Technology in services: creating organizational revolutions," *Sloan Management Review* 31, 67-78.

Roach, S. S. (1993). "Making technology work, special economic study," *Morgan Stanley*, New York.

Roth, A.V. and M. v. d. Velde (1991a). "Customer-perceived quality drives retail banking in '90s," *Bank Management* November, 29-35.

Roth, A.V. and M. v. d. Velde (1991b). "The retail technology," *Bank Management* December, 14-19.

Roth, A.V. and M. v. d. Velde (1992). *World class banking: benchmarking the strategies of retail banking leaders*. Chicago, IL, Center for Banking Excellence, Bank Administration Institute.

Seiford, L. and R. M. Thrall (1990). "Recent developments in DEA: the mathematical programming approach to frontier analysis," *Journal of Econometrics* 46, 7-38.

Sellers, B. L. (1992). "The bonus onus: devising a fair plan," *Bankers Monthly* 109(5), 27-29.

Smith, V. L. (1994). "Economics in the laboratory," *Journal of Economic Perspectives* 8, 113-132.

Stalk, G. (1988). "Time - the next source of competitive advantage," *Harvard Business Review*, 41-51.

Steiner, T. D. and D. B. Teixeira (1990). *Technology in banking: creating value and destroying profits*. Homewood, IL, Irwin.

Tainio, R., P. J. Korhonen, et al. (1991). "In search of explanations for bank performance -- some Finnish data," *Organization Studies* 12(3), 426-450.

Teece, D. J. (1987). Profiting from technological innovation: implications for integration, collaboration, licensing and public policy. *The competitive challenge: strategies for industrial innovation and renewal*, Ed. D. J. Teece. Berkeley, Ballinger.

Teece, D. J., G. Pisano, et al. (1992). "*Dynamic strategy and strategic management*," *Working Paper*, Haas School of Business, University of California, Berkeley, CA.

Thomas, R. J. (1992). "*Organizational politics and technological change*," *Journal of Contemporary Ethnography* 20, 442-477.

Thomas, R. J. (1993). *What machines can't do: politics and technology in industrial enterprise*. Berkeley, CA, University of California Press.

Wernerfelt, B. (1984). "A resource-based view of the firm," *Strategic Management Journal* 5, 171-180.

Wright, P. and S. Snell (1991). "Toward an integrative view of strategic human resource management," *Human Resource Management Review* 1, 203-225.

Zuboff, S. (1985). "Automate/informate: the two faces of intelligent technology," *Organizational Dynamics Fall*, 5-18.